PARMELIA AFFLUENS, A NEW SPECIES OF LICHEN IN SUBGENUS AMPHIGYMNIA WITH A YELLOW MEDULLA

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PARMELIA AFFLUENS Hale, sp. nov.

Thallus ut in P. araucariarum Zahlbr. sed medulla P+, materiis chemicis affluentibus continentibus differt.

Holotype: Peru: Tingo Maria, San Martín, H. Allard 20700, 19 February 1960 (US; isotypes in TNS, UPS).

Additional specimens examined. Peru: Haciendo Exito, Churubamba, Huanuco, Mexia 8249a (F, US); near Elena Propria, Tingo Maria, Morrow 9605 (US); Tingo Maria, Allard 21893, 22524 (US). Brazil: Manaus-Amazonas: Taruma, Xavier & Chagas 622, Punta Negra, Xavier s.n., Rio Salimoes, Xavier 615, 624 (US). India: Lasee, Himalayas, Griffith (BM).

This species has broad, marginally sorediate, eciliate lobes and a pale yellow medulla, externally indistinguishable from P. araucariarum Zahlbr. (see Hale, 1965). I had not been able to resolve the chemistry with the crystal tests available when I prepared the monograph, but thin-layer chromatography has now clarified it. The type of P. araucariarum contains atranorin, a fatty acid (apparently protolichesterinic acid), and one or more unidentified yellow pigments that form a high streak on TLC plates. One is probably entothein. The medulla reacts P-. All other specimens that I have been able to re-examine, however, are P+ red in the medulla and have highly distinctive chromatographic profiles. this population is the basis of the new species.

The best resolution is obtained in hexane-ether-formic acid (9:4:1), visualizing with H_2SO_4 and heating. Beginning from the top down the following eight spots are easily distinguished at the R_f points listed (solvent front at 10 cm): 1. atranorin (.75); 2. unknown no. 1, a large gray spot (.65); 3. unknown no. 2, a deep salmon spot (.45); 4. unknown no. 3, a small weak yellowish spot (.35); 5. unknown 4, a second yellowish spot (.24); 6. unknown 5, a brown spot (.20); 7. unknown 6, a deep orange-brown spot (.17), just below unknown no. 6; and 8, protocetraric acid (.08) (P+ red) with a dark streak below this to the point of origin. Resolution

is less satisfactory in benzene-dioxane-acetic acid with little correspondence between the spots seen with hexane: atranorin at .70, a light orange-brown spot at .50, a gray spot (= unknown no. 2?) at .43, streaks and a large streaked brown area at .18-.22, and finally protocetraric acid (.06). The main pigment is not the same as that in P. araucariarum, falling much lower on the plates.

There is minor chemical variation among the specimens tested. Mexia 8249a, Morrow 9605, Xavier s.n., and Xavier 622 are identical with the holotype chemistry described above. Allard 22524 lacks unknowns no. 3 and 5 but has a large yellow-brown spot at .30. A specimen from the Himalayas, tentatively identified as P. affluens, lacks this extra spot as well as nos. 3 and 5. This species was co-chromatogrammed with various known substances (physodalic acid, norlobaridone, stictic and norstictic acids, P. quintaria unknowns (Hale, 1971), salazinic acid, alectoronic acid, P. livida group substances, etc.) but none matched.

Parmelia affluens is known so far from Peru and Brazil, usually at mid or lower elevations. It would superficially be identified as a small specimen of P. cristifera Tayl. or even P. dilatata Vainio. The yellow medulla is, of course, the outstanding diagnostic character and a positive P+ test would differentiate it from P. araucariarum, which was described from São Paulo.

Literature Cited

Hale, M. E. 1965. A monograph of Parmelia subgenus Amphigymnia. Contr. U. S. Nat. Herb. 36:193-358.

_____ 1971. Studies on Parmelia subgenus Xanthoparmelia (Lichenes) in South Africa. Bot. Notiser 124:343-354.